

Amendments to the Claims

Please amend claims 43, 62, 75, 82 and add claims 122 and 123 as follows. This listing of the claims will replace all prior versions, and listings, of the claims in this application.

It is apparent that that claim 48 was erroneously listed as a claim readable on the elected invention. It should, as the Examiner indicated, be considered to be withdrawn from consideration.

41. (Original) A method for making a composite, the composite expected to be placed under a load creating expected load lines, comprising:
- choosing stretch-resistant segments;
 - selecting a first layer of material having a circumferential edge;
 - arranging the segments on the first layer of material generally along expected load lines;
 - the choosing step comprising the step of selecting lengths of the segments so that at least most of the segments extend only part way along the expected load lines; and
 - securing the segments to the first layer of material so to create a composite.
42. (Original) The method according to claim 41 wherein the choosing step comprises selecting yarns as the segments.
43. (Currently amended) The method according to ~~claim 41~~ claim 46 wherein the arranging step is carried out so that the mat elements of each mat are oriented at a range of angles from about 0° to 6° relative to one another.
44. (Withdrawn) The method according to claim 41 wherein the choosing step is carried out with at least some of the segments secured to a control strand to form a belt of segments.
45. (Withdrawn) The method according to claim 44 wherein the arranging step comprises orienting the control strand generally perpendicular to the expected load lines.
46. (Original) The method according to claim 41 wherein the choosing step is carried out so that said segments comprise mats of mat elements as said segments, at least most of the mat elements in each the mat being generally parallel.
47. (Withdrawn) The method according to claim 46 wherein the choosing step is carried out so that the mat elements of each mat comprise mat fibers.
48. (Withdrawn) The method according to claim 47 wherein the choosing step is carried out so that the mat fibers for each mat are laterally-arranged mat fibers oriented over a range of angle from about 0° to 6°.
49. (Original) The method according to claim 46 wherein the choosing step comprises:

separating multi-fiber yarn into generally parallel, laterally-oriented fibers; and
adhering the fibers to one another to form a fiber sheet.

50. (Original) The method according to claim 49 wherein said choosing step comprises severing the fiber sheet to form the mats.

51. (Original) The method according to claim 49 wherein the separating step includes pneumatically spreading the fibers.

52. (Original) The method according to claim 51 wherein the choosing step comprises wrapping the pneumatically-spread fibers onto a rotating drum.

53. (Original) The method according to claim 52 wherein the adhering step comprises applying an adhesive onto said pneumatically-spread fibers on said drum.

54. (Original) The method according to claim 46 wherein the choosing step includes selecting mat segments in the form of multi-fiber yarns.

55. (Original) The method according to claim 54 wherein the choosing step is carried out with at least some untwisted-fiber yarns.

56. (Original) The method according to claim 54 wherein the choosing step is carried out so that at least most of the yarns of each the mat are laterally spaced-apart from one another.

57. (Original) The method according to claim 56 wherein the choosing step comprises adhering transversely oriented yarns to the laterally spaced-apart yarns to create stabilized mats.

58. (Original) The method according to claim 46 wherein the choosing step comprises selecting mat segments in the form of:

laterally spaced-apart multi-fiber yarns; and

a layer of laterally-arranged fibers, said fibers generally being in contact with adjacent fibers.

59. (Original) The method according to claim 46 further comprising:

determining the placement of the mats along the load lines; and wherein the mats arranging step comprises:

creating mat placement marks on a mat lay-up surface based upon the mat placement determining step; and

arranging the mats on the mat lay-up surface according to the mat placement marks.

60. (Original) The method according to claim 59 wherein the mat placement marks creating step comprises optically projecting the mat placement marks onto the mat lay-up surface.

61. (Withdrawn) The method according to claim 60 wherein the optically projecting step is carried out by projecting the mat placement marks onto a tubular surface.

62. (Currently amended) The method according to claim 60 wherein the optically projecting step is carried out by ~~projecting~~² projecting continuous expected load lines onto the mat lay-up surface.

63. (Withdrawn) The method according to claim 60 wherein the mat placement marks creating step comprises orienting the mat lay-up surface in a generally vertical orientation.

64. (Original) The method according to claim 59 wherein the mat placement marks creating step is carried out using the first layer as the mat lay-up surface.

65. (Original) The method according to claim 41 wherein the securing step comprises laminating the segments between the first layer of material and a second layer of material, the layers of material and segments therebetween constituting a material stack.

66. (Original) The method according to claim 65 wherein the laminating step comprises subjecting the material stack to heat and pressure.

67. (Original) The method according to claim 65 wherein the laminating step comprises: capturing the material stack between inner surfaces of first and second pressure elements; and squeezing the material stack between the pressure elements.

68. (Original) The method according to claim 67 wherein the laminating step further comprises applying heat to the material stack.

69. (Original) The method according to claim 68 wherein at least part of the heat applying step is carried out during at least part of the forcing step.

70. (Original) The method according to claim 67 wherein the forcing step comprises creating a differential fluid pressure between the inner and outer surfaces of the pressure elements.

71. (Original) The method according to claim 70 wherein the differential fluid pressure creating step is carried out by applying a partial vacuum between the pressure elements.

72. (Original) The method according to claim 67 wherein the laminating step comprises: flowing a heated fluid over and in contact with at least 80% of the outer surfaces of the pressure elements.

73. (Original) The method according to claim 72 wherein the heated fluid flowing step is carried out using a chosen one of heated air and heated oil as the heated fluid.

74. (Withdrawn) The method according to claim 72 wherein the capturing step is carried out using an elastomeric pressure element as the first pressure element.

75. (Currently amended) The method according to claim 67 wherein the capturing step is carried out using first and second flexible ~~pressure~~^{pressure} sheets as the first and second pressure elements.

76. (Original) The method according to claim 75 further comprising urging a form against the outer surface of the second pressure sheet.

77. (Original) The method according to claim 76 wherein the form urging step is carried out prior to the heated fluid flowing step.

78. (Original) The method according to claim 76 wherein the form urging step is carried out using a three-dimensional form imparting a three-dimensional shape to the second pressure sheet.

79. (Original) The method according to claim 71 wherein the laminating step comprises enclosing the pressure elements and the material stack therebetween within a substantially sealed enclosure and the heated fluid flowing step is carried out by the forced circulation of heated air within the enclosure.

80. (Original) The method according to claim 78 wherein the laminating step comprises cooling the material stack by opening the enclosure to an ambient environment after the heated fluid flowing step.

81. (Original) The method according to claim 79 wherein the cooling step comprises forcing ambient air through the enclosure and over the pressure elements.

82. (Currently amended) The method according to claim 41 further comprising finishing the sheet of composite material to form a sailcraft sail.

83. (Original) The method according to claim 41 further comprising:
joining a plurality of the composites; and
finishing said joined composites to create a sailcraft sail.

84. (Original) The method according to claim 78 further comprising finishing the composite to form a three-dimensional sailcraft sail.

85. (Original) The method according to claim 78 further comprising joining a plurality of the composites, and
finishing said joined composites to form a three-dimensional sailcraft sail.

86. (Original) The method according to claim 41 wherein arranging step includes laterally staggering the segments thereby helping to reduce weak areas in the composite.

87. (Original) The method according to claim 46 wherein said arranging step comprises laterally staggering and overlapping said mats to help reduce weak areas in the composite.

88. (Original) The method according to claim 41 wherein the arranging step comprises applying the segments in a manner to create a generally constant strain composite material.

89. (Withdrawn) A method for making a composite, the composite expected to be placed under a load, comprising:

- choosing stretch-resistant segments, said segments having ends;
 - selecting a first layer of material;
 - arranging the segments on the first layer of material, the arranging step comprising laterally staggering the ends of the segments to help reduce weak areas; and
 - securing the segments to the first layer of material so to create a composite.
122. (New) The method according to claim 41 wherein the expected load lines are curved.
123. (New) The method according to claim 41 wherein the expected load lines are not parallel to one another.